

**REMARKS**

Please reconsider the application in view of the above amendments and the following remarks.

**Disposition of Claims**

Claims 1-42 remain pending. Claim 42 was allowed. Claims 1-28 and 30-39 were rejected. Claims 30-33, 35-36 and 38-39 have been amended. Claims 15, 40 and 41 received objections. Claims 1, 16, 19, 22 and 42 are independent claims. The remaining claims depend directly or indirectly from claims 1, 16, 19, 22, and 42. No new matter has been added by way of amendment.

**Objections**

According to the Office Action, Claims 16, 40 and 41 are objected to and will be allowable, if presented in independent form including limitations of the claim(s) they are dependent on. Applicant assumes the Examiner intended to list claim 29 instead of claim 16 (claim 16 is an independent claim). Applicant has amended claims 30-33, 35-36 and 38-39 to depend from Claim 29 to resolve a numbering error. No new matter has been added by way of this amendment.

For reasons stated below, Applicant believes that the base claims from which these claims depend are allowable and that there is no need to rewrite these claims in independent forms. Accordingly, Applicant respectfully defers rewriting the claims at this time.

**Rejection(s) under 35 U.S.C. § 103(a)**

The Examiner rejected claims 1-18 under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 5,677,628) in view of Taicher et al (5,767,186). The Examiner rejected claims 19-21 under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al in view of Taicher and further in view of Kleinberg (US 6,346,813). Claims 22-28 and 30-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kleinberg and further in view of Watanabe. Applicant respectfully traverses the rejection.

In each of the rejections, the Examiner attempts to combine Watanabe with Taicher and/or Kleinberg (among other references). However, only through improper hindsight reconstruction of incompatible references is the Examiner able to assemble this argument. Watanabe's technique is intended for highly homogeneous magnetic fields (*See, e.g., pulse sequences depicted in Figures 1 and 4*). The pulse sequences depicted, for example, in Figures 1 and 4 demonstrate a pulse sequence that would be incompatible with non-homogeneous wellbore environments such as those described in Taicher and Kleinberg. The problem of inhomogeneity is described by Applicant, for example, at paragraphs 0025 and 0027 of the Specification. In view of the homogeneity issues, among others, there would be no motivation for one of skill in the art to combine the teachings of Watanabe with the teachings of Taicher or Kleinberg.

The Examiner suggests that one of skill in the art would combine the methods of Watanabe, Taicher and/or Kleinberg. However, there is no motivation within any of the cited references to achieve such a combination. In fact, the homogeneity issues suggest that such teachings would deter such a combination. Absent some motivation, there is no basis to support a *prima facie* case of obviousness. Thus, Applicants submit that Watanabe, Taicher and/or Kleinberg fail to establish a *prima facie* case of obviousness over claim 1 and its dependent claims.

The Examiner also rejected several claims based on knowledge of one of ordinary skill in the art. For example the Examiner rejected claims 2-5 on the grounds that oxygen-17 and phosphorous-31 are commonly used in the art and would be obvious to use for one of ordinary skill in the art. Similarly, claims 6-8 and 17 were rejected based on commercially useful minerals. In each such case, Applicants request an affidavit from the Examiner in support of the reference or basis for this conclusion if it is to be maintained as is its right under 37 CFR 1.104(d)(2).

In view of the above, Applicants respectfully submit that none of the art of record (alone or in combination) teaches, discloses or even suggests the invention as recited in each of Applicant's claims. Applicant further submits that all of the pending claims are in condition for allowance. Withdrawal of the rejections and passage to issuance is respectfully requested.

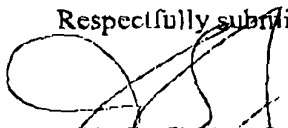
Applicant believes this reply to be fully responsive to all outstanding issues and place this application in condition for allowance. If this belief is incorrect, or other issues arise, do not

hesitate to contact the undersigned at the below listed telephone number. Please apply charges or credits due, to Deposit Account 19-0610 (Reference Number 20.2817).

Date: \_\_\_\_\_

11/5/03

Respectfully submitted,



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